



SEQUENCE LISTING

<110> Nielsen, Peter
Buchardt, Dorte
Sonnicksen, Soren Holst
Lohse, Jesper
Egholm, Michael
Manoharan, Muthiah
Kiely, John
Griffith, Michael
Sprinkle, Kelly

<120> Peptide Nucleic Acid Conjugates

<130> ISIS2112

<140> 08/817,067

<141> 1997-04-04

<150> PCT/US95/12931

<151> 1995-10-06

<150> USSN 08/319,411

<151> 1994-10-06

<150> 08/088,658

<151> 1993-07-02

<150> 08/088,661

<151> 1993-07-02

<150> 08/275,951

<151> 1994-07-15

<150> 986/91

<151> 1991-05-24

<150> 987/91

<151> 1991-05-24

<150> 510/92

<151> 1992-04-15

<160> 161

<170> PatentIn Ver. 2.1

<210> 1

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 1
gcat

4

<210> 2
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 2
gcat

4

<210> 3
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 3
gcat

4

<210> 4
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 4
gcat

4

<210> 5

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 5
gcat

4

<210> 6
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 6
gcat

4

<210> 7
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 7
gcat

4

<210> 8
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 8
gcat

4

<210> 9

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 9
gcat

4

<210> 10
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 10
gcat

4

<210> 11
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 11
gcat

4

<210> 12
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 12
gcat

4

<210> 13

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 13
gcat

4

<210> 14
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 14
gcat

4

<210> 15
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 15
gcat

4

<210> 16
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 16
gcat

4

<210> 17

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 17
gcat

4

<210> 18
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 18
gcat

4

<210> 19
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 19
gcat

4

<210> 20
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 20
gcat

4

<210> 21

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 21
gcat

4

<210> 22
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 22
gcat

4

<210> 23
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 23
gcat

4

<210> 24
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 24
gcat

4

<210> 25

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 25
gcat

4

<210> 26
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 26
gcat

4

<210> 27
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 27
gcat

4

<210> 28
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 28
gcat

4

<210> 29

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 29
gcat

4

<210> 30
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 30
gcat

4

<210> 31
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 31
gcat

4

<210> 32
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 32
gcat

4

<210> 33

<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel
Sequence

<220>
<221> misc_feature
<222> (2)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<220>
<221> misc_feature
<222> (6)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<220>
<221> misc_feature
<222> (10)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<400> 33
gtagatcact

10

<210> 34
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (1)..(10)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<400> 34
gtagatcact

10

<210> 35
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (6)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<400> 35
ttttttttt

10

<210> 36
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (4)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<220>
<221> misc_feature
<222> (6)
<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<400> 36
ttttttttt

9

<210> 37
<211> 10
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (4)

<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<220>

<221> misc_feature

<222> (6)

<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<220>

<221> misc_feature

<222> (8)

<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<400> 37

ttttttttt

10

<210> 38

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (1)..(10)

<223> a monomer functionalized to have an N-methyl group
on the 2-aminoethyl portion of the monomer

<400> 38

ttttttttt

10

<210> 39

<211> 5

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (3)..(4)

<223> Biotin linkage

<400> 39

ttctt

5

|

<210> 40

<211> 4

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 40

gcat

4

<210> 41

<211> 4

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 41

gcat

4

<210> 42

<211> 4

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 42

gcat

4

<210> 43

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 43
gcat

4

<210> 44
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 44
gcat

4

<210> 45
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 45
gcat

4

<210> 46
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 46
gcat

4

<210> 47

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 47
gcat

4

<210> 48
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 48
gcat

4

<210> 49
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 49
gcat

4

<210> 50
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 50
gcat

4

<210> 51

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 51
gcat

4

<210> 52
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 52
gcat

4

<210> 53
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 53
gcat

4

<210> 54
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 54
gcat

4

<210> 55

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 55
gcat

4

<210> 56
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 56
gcat

4

<210> 57
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 57
gcat

4

<210> 58
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 58
gcat

4

<210> 59

<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (3)
<223> a disulfide protected thiohexyloxymethyl linking group attached to the C-1 position of the 2-aminoethyl portion of the monomer in the oligomer

<400> 59
gcat

4

<210> 60
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (3)
<223> a pentyl-N-phthalimido functionality attached to the hydroxy methyl group at the C-1 carbon of the 2-aminoethyl portion of the monomer

<400> 60
gcatgcat

8

<210> 61
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature
<222> (4)
<223> a pentyl-N-phthalimido functionality attached to
the hydroxy methyl group at the C-2 carbon of the
2-aminoethyl portion of the monomer

<400> 61

gcatgcat

8

<210> 62
<211> 8
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature
<222> (4)
<223> a pentyl-N-phthalimido functionality at serine-O
of the serine portion of the monomer

<220>

<221> misc_feature
<222> (7)
<223> a pentyl-N-phthalimido functionality at serine-O
of the serine portion of the monomer

<400> 62

gcatgcat

8

<210> 63
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature
<222> (9)
<223> a pentyl-N-phthalimido functionality attached to
the hydroxy methyl group at the C-1 carbon of the
2-aminoethyl portion of the monomer

<400> 63
ctgtctccat cctttcact

20

<210> 64
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a pentyl-N-phthalimido functionality at serine-O
of the serine portion of the monomer

<220>
<221> misc_feature
<222> (18)
<223> a pentyl-N-phthalimido functionality at serine-O
of the serine portion of the monomer

<400> 64
ctgtctccat cctttcact

20

<210> 65
<211> 12
<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (4)
<223> a pentyl-N-phthalimido functionality attached to
the hydroxy methyl group at the C-2 carbon of the
2-aminoethyl portion of the monomer

<400> 65
ccaagccuca ga

12

<210> 66
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Combined DNA/RNA Molecule: PNA
oligomers

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (11)
<223> a pentyl-N-phthalimido functionality attached to
the hydroxy methyl group at the C-1 carbon of the
2-aminoethyl portion of the monomer

<400> 66
ccaggcucag at

12

<210> 67
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate a
biotin functionality linked via a pentylamino
linking group attached to the C-1 hydroxymethyl
group of the PNA monomer

<400> 67
ctgtctccat cctcttcact

20

<210> 68
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate a biotin functionality linked via a pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<220>
<221> misc_feature
<222> (18)
<223> a PNA monomer functionalized to incorporate a biotin functionality linked via a pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<400> 68

ctgtctccat cctcttcact

20

<210> 69
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate a fluorescein functionality linked via a pentylamino linking group to the hydroxymethyl group at the C-1 position of the 2-aminoethyl portion of the PNA

<400> 69

ctgtctccat cctcttcact

20

<210> 70
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate a fluorescein functionality linked via an pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<220>
<221> misc_feature
<222> (18)
<223> a PNA monomer functionalized to incorporate a fluorescein functionality linked via an pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<400> 70
ctgtctccat cctcttcact 20

<210> 71
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate a cholic acid functionality linked via a pentylamino linking group to the hydroxymethyl group at the C-1 position of the 2-aminoethyl portion of the PNA

<400> 71
ctgtctccat cctcttcact 20

<210> 72
<211> 20
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (9)

<223> a PNA monomer functionalized to incorporate a cholic acid functionality linked via a pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<220>

<221> misc_feature

<222> (18)

<223> a PNA monomer functionalized to incorporate a cholic acid functionality linked via a pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<400> 72

ctgtctccat cctcttcact

20

<210> 73

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (9)

<223> a PNA monomer functionalized to incorporate a digoxigenin functionality linked via an pentylamino linking group to the hydroxymethyl group at the C-1 position of the 2-aminoethyl portion of the PNA

<400> 73

ctgtctccat cctcttcact

20

<210> 74

<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> nucleotides functionalized to incorporate a cholic acid functionality linked via a pentylamino linking group to the hydroxyl group of the serine portion of the PNA

<220>
<221> misc_feature
<222> (18)
<223> nucleotides functionalized to incorporate a cholic acid functionality linked via a pentylamino linking group to the hydroxyl group of teh serine portion of the PNA

<400> 74
ctgtctccat cctcttcact

20

<210> 75
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate to a SV40 peptide functionality linked via a pentyl-amino-sulfo-SMCC linking group to the hydroxymethyl group of the designated PNA monomer

<400> 75
ctgtctccat cctcttcact

20

<210> 76
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate an
alkaline phosphatase functionality linked via DSS
linking group to the aminopentyl oxymethyl of the
designated PNA monomer

<400> 76
ctgtctccat cctcttcact

20

<210> 77
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized to incorporate a
folic acid functionality linked to the
aminopentyloxymethyl of the designated PNA monomer

<400> 77
ctgtctccat cctcttcact

20

<210> 78
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)

<223> a pentyl N-phthaloyl oxymethyl group attached at
the C-1 position of the 2-aminoethyl portion of
the designated monomer in the oligomer

<400> 78

ctgtctccat cctcttcact

20

<210> 79

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (9)

<223> a pentyl-N-phthaloyl oxymethyl group attached at
the serine O- portion of the designated monomer in
the oligomer

<220>

<221> misc_feature

<222> (18)

<223> a pentyl-N-phthaloyl oxymethyl group attached at
the serine O- portion of the designated monomer in
the oligomer

<400> 79

ctgtctccat cctcttcact

20

<210> 80

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (9)

<223> a PNA monomer functionalized with phenanthroline
via a thiol linker of the structure

<400> 80
ctgtctccat cctcttcact 20

<210> 81
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a PNA monomer functionalized at the serine O-
position with phenanthroline via a thiol linker of
the structure

<220>
<221> misc_feature
<222> (18)
<223> a PNA monomer functionalized at the serine
O-position with phenanthroline via a thiol linker
of the structure

<400> 81
ctgtctccat cctcttcact 20

<210> 82
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a pyrene attached via a linking group at the C-1
position of the 2-aminoethyl portion of the
designated monomer

<400> 82
ctgtctccat cctcttcact 20

<210> 83
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a pentyl N-phthaloyl oxymethyl group at the serine
-O portion of the designated monomer

<220>
<221> misc_feature
<222> (18)
<223> a pentyl N-phthaolyloxymethyl group at the serine
-O portion of the designated monomer

<400> 83
ctgtctccat cctcttcact 20

<210> 84
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a 9-acridinyl group attached via a linking moiety
to the C-1 position of the 2-aminoethyl portion of
the indicated monomer

<400> 84
ctgtctccat cctcttcact 20

<210> 85
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a 9-acridinyl group attached via a linking moiety
to the serine O- position on the designated
monomers in the oligomer

<220>
<221> misc_feature
<222> (18)
<223> a 9-acrindinyl group attached via a linking moiety
to the serine O- position on the designated
monomers in the oligomer

<400> 85
ctgtctccat cctcttcact 20

<210> 86
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a 2-porphyrin group tethered to the C-1 position
of the 2-aminoethyl portion of the designated PNA
oligomer

<400> 86
ctgtctccat cctcttcact 20

<210> 87
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a photonuclease/intercalator ligand attached with
a tether to the C-1 position of the 2-aminoethyl
portion of the designated monomer in the oligomer

<400> 87
ctgtctccat cctcttcact

20

<210> 88
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a photonuclease/intercalator ligand attached with
a tether to the serine O- position of the
designated monomers in the oligomer

<220>
<221> misc_feature
<222> (18)
<223> a photonuclease/intercalator ligand attached with
a tether to the serine O- position of the
designated monomers in the oligomer

<400> 88
ctgtctccat cctcttcact

20

<210> 89
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature

<222> (9)
<223> a bipyridinyl complex attached via a linker to the
C-1 position of the 2-aminoethyl portion of the
designated monomer in the oligomer

<400> 89
ctgtctccat cctcttcact

20

<210> 90
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a pentylamino oxymethyl group attached at the C-1
of the 2-aminoethyl portion of the designated
monomer in the oligomer

<400> 90
ctgtctccat cctcttcact

20

<210> 91
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> an HSAB group attached via a tether to the C-1
position of the 2-aminoethyl portion of the
designated monomer in the oligomer

<400> 91
ctgtctccat cctcttcact

20

<210> 92

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> a 6 hexanoate group attached via a tether to the
C-1 position of the 2-aminoethyl portion of the
designated monomer in the oligomer

<400> 92
ctgtctccat cctcttcact

20

<210> 93
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)
<223> an imidazolyl group attached via a tether to the
C-1 position of the 2-aminoethyl portion of the
designated monomer in the oligomer

<400> 93
ctgtctccat cctcttcact

20

<210> 94
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (9)

<223> complexed Gadolinium ion attached via a tether to
the C-1 position of the 2- aminoethyl portion of
the designated monomer in the oligomer

<400> 94

ctgtctccat cctcttcact

20

<210> 95

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (9)

<223> cholesterol attached via a tether to the C-1
position of the 2-aminoethyl portion of the
designated monomer in the oligomer

<400> 95

ctgtctccat cctcttcact

20

<210> 96

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature .

<222> (9)

<223> a cholesterol attached via a tether to the serine
O-position of the designated monomers in the
oligomer

<220>

<221> misc_feature

<222> (18)

<223> a cholesterol attached via a tether to the serine
O-position o fthe designated monomers in the
oligomer

<400> 96
ctgtctccat cctcttcact 20

<210> 97
<211> 4
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (3)
<223> a cholesterol group attached via a tether to the
C-1 position of the 2-aminoethyl portion of the
monomer in the oligomer

<400> 97
gcat 4

<210> 98
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 98
ttcttctttt 10

<210> 99
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 99
ttcttctttt 10

<210> 100
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 100
ttcttcttt

10

<210> 101
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 101
ttcttcttt

10

<210> 102
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 102
ttcttcttt

10

<210> 103
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 103
ttcttcttt

10

<210> 104
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 104
ttcttctttt

10

<210> 105
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 105
tttttttttt

10

<210> 106
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 106
tttttttttt

10

<210> 107
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 107
tttttttttt

10

<210> 108
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 108
ttcttctttt

10

<210> 109
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 109
ctcttttttt

10

<210> 110
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 110
tttcttctca cttctt

16

<210> 111
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 111
tttcttctca cttctt

16

<210> 112
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 112
tttttttttt

10

<210> 113
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 113
tttttttttt

10

<210> 114
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 114
tttttttttt

10

<210> 115
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 115
ttcttctttt

10

<210> 116
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 116
ttcttcttt

10

<210> 117
<211> 5
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 117
ttttt

5

<210> 118
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 118
ttcttcttt

10

<210> 119
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 119
ttcttcttt

10

<210> 120
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 120
ttcttcttt

10

<210> 121
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 121
ttttggtg tg ggtct

15

<210> 122
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 122
ttcttcttt

10

<210> 123
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 123
tttcttctca cttctt

16

<210> 124
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 124
gtagatcact

10

<210> 125
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 125
agtcatctac

10

<210> 126
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 126
ttcttctttt

10

<210> 127
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 127
ctctttttt

10

<210> 128
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 128
ctcttttttt

10

<210> 129
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 129
ttcttctttt

10

<210> 130
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 130
ctcttttttt

10

<210> 131
<211> 5
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 131
ttttt

5

<210> 132
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 132
tgtacgtcac aacta

15

<210> 133
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 133
tgtacgtcac aacta

15

<210> 134
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 134
ttcttctttt

10

<210> 135
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 135
ttcttctttt

10

<210> 136
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 136
ttcttctttt

10

<210> 137
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 137
ttcttctttt

10

<210> 138
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 138
ttcttctttt

10

<210> 139
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 139
ttcttctttt

10

<210> 140
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 140
ctctttttt

10

<210> 141
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 141
gcatgcat

8

<210> 142
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 142
gcatgcat

8

<210> 143
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 143
gcatgcat

8

<210> 144
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 144
gcatgcat

8

<210> 145
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 145
gcatgcat

8

<210> 146
<211> 8
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 146
gcatgcat

8

<210> 147
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<220>
<221> misc_feature
<222> (5)
<223> the incorporation of a monomeric unit containing a

protected thiol functionality

<400> 147

tgggagccat agcgagcc

18

<210> 148

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (20)

<223> the incorporation of a monomeric unit containing a
protected thiol functionality

<400> 148

tctgagtagc agaggagcta ag

22

<210> 149

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<400> 149

ttcttctttt

10

<210> 150

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Novel Sequence

<220>

<221> misc_feature

<222> (10)..(11)

<223> Lysine, AHA, Lysine, AHA, Lysine linkage

<400> 150
ttttcttctt ttcttctttt 20

<210> 151
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 151
aaaagaaga 10

<210> 152
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 152
gatccaaaaa aaaaag 16

<210> 153
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 153
gatcctttt tttttg 16

<210> 154
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 154
aaaaagaaaa

10

<210> 155
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 155
tcgacttttc tttttg

16

<210> 156
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 156
tcgacaaaaaa gaaaag

16

<210> 157
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 157
aagaagaaaa

10

<210> 158
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 158
gaagaagaaa atgca

15

<210> 159
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 159
gttttcttct tctgca

16

<210> 160
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 160
gaagaagaaa agtgac

16

<210> 161
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Novel Sequence

<400> 161
aaaaaaaaaa

10